

SECTION 5C

MISCELLANEOUS METAL

1. APPLICABLE PUBLICATIONS: The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

1.1 American Society for Testing and Materials (ASTM) Publications:

A 53-82	Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless
A 123-78	Zinc (Hot-Galvanized) Coatings on Products Fabricated from Rolled, Pressed, and Forged Steel Shapes, Plates, Bars, and Strip
A 386-78	Zinc Coating (Hot-Dip) on Assembled Steel Products
A 525-81	Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process

1.2 American Welding Society (AWS) Standard:

D1.1-82	Structural Welding Code - Steel
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2. GENERAL REQUIREMENTS: The Contractor shall verify all measurements and shall take all field measurements necessary before fabrication. Welding to or on structural steel shall be in accordance with AWS D1.1. Items specified to be galvanized, when practicable and not indicated otherwise, shall be hot-dip galvanized after fabrication. Galvanizing shall be in accordance with ASTM A 123, A 386, or A 525, as applicable. Exposed fastenings shall be compatible materials, shall generally match in color and finish, and shall harmonize with the material to which fastenings are applied. Materials and parts necessary to complete each item, even though such work is not definitely shown or specified, shall be included. Poor matching of holes for fasteners shall be cause for rejection. Fastenings shall be concealed where practicable. Thickness of metal and details of assembly and supports shall give ample strength and stiffness. Joints exposed to the weather shall be formed to exclude water.

3. DISSIMILAR MATERIALS: Where dissimilar metals are in contact, or where aluminum is in contact with concrete, mortar, masonry, wet or pressure-treated wood, or absorptive materials subject to wetting, the surfaces shall be protected with a coat of bituminous paint or asphalt varnish.

4. SUBMITTALS:

4.1 Shop Drawings: Shop drawings shall be submitted in accordance with SPECIAL PROVISIONS. Shop drawings shall indicate material thickness, type, grade, and class; dimensions; and construction details. Drawings shall

include catalog cuts, erection details, manufacturer's descriptive data and installation instructions, and templates. Shop drawings for the following items shall be submitted: structural steel door frames.

4.2 Samples: Samples shall be full size, shall be taken from manufacturer's stock, and shall be complete as required for installation in the structure. After approval, samples may be installed in the work, provided each sample is clearly identified and its location recorded.

5. WORKMANSHIP: Miscellaneous metalwork shall be well formed to shape and size, with sharp lines and angles and true curves. Drilling and punching shall produce clean true lines and surfaces. Welding shall be continuous along the entire area of contact except where tack welding is permitted. Exposed connections of work in place shall not be tack welded. Exposed welds shall be ground smooth. Exposed surfaces of work in place shall have a smooth finish, and unless otherwise approved, exposed riveting shall be flush. Where tight fits are required, joints shall be milled. Corner joints shall be coped or mitered, well formed, and in true alignment. Work shall be accurately set to established lines and elevations and securely fastened in place. Installation shall be in accordance with manufacturer's installation instructions and approved drawings, cuts, and details.

6. ANCHORAGE: Anchorage shall be provided where necessary for fastening miscellaneous metal items securely in place. Anchorage not otherwise specified or indicated shall include slotted inserts, expansion shields, and powder-driven fasteners when approved for concrete; toggle bolts and through bolts, lag bolts, and screws for wood. Slotted inserts shall be of types required to engage with the anchors and shall be approved.

7. CORNER GUARDS AND SHIELDS: Corner guards and shields for jambs and sills of openings shall be steel shapes and plates anchored in masonry or concrete with welded steel straps or end-weld stud anchors.

8. STEEL BUMPERRAIL POST: Steel posts shall be standard weight steel pipe of nominal 2-inch size conforming to ASTM A 53. Installation shall be by means of base plates bolted to the floor.

9. MISCELLANEOUS PLATES AND SHAPES: Miscellaneous plates and shapes for items that do not form a part of the structural steel framework, such as lintels, sill angles, miscellaneous mountings, and frames, shall be provided to complete the work.

10. STRUCTURAL STEEL DOORFRAMES: Structural steel door frames shall be neatly mitered and securely welded at the corners with all welds ground smooth. Jambs shall be provided with 2- by 1/4- by 12-inch bent metal anchors spaced not over 2 feet 6 inches on centers. Provision shall be made to stiffen the top member for all spans over 3 feet. The bottom of the frames shall be secured to the slab by means of angle clips and expansion bolts. Stops shall be made of 1-1/2 by 5/8-inch bars welded or tap-screwed to the frame at not more than 18-inch centers. Screws shall be countersunk. Stops shall be so placed that full contact with the frame will be assured. Any necessary reinforcements shall be made and the frames shall be drilled and tapped as required for hardware.

11. SHOP PAINTING: Unless otherwise specified, surfaces of ferrous metal, except galvanized surfaces, shall be cleaned and shop coated with the manufacturer's standard protective coating. Items to be finish painted shall not be given a bituminous protective coating. Surface shall be cleaned with solvents to remove grease and oil and with power wire brushing or sandblasting to remove loose rust, loose mill scale, and other foreign substances. Surfaces of items embedded in concrete shall not be painted.